

# A Rapid Coliform Detector, Phase I

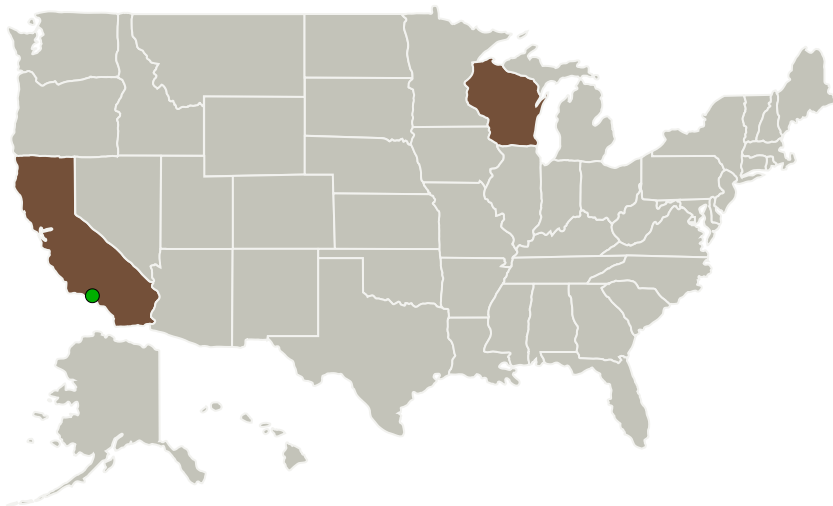
Completed Technology Project (2012 - 2012)



## Project Introduction

ORBITEC, in collaboration with Lucigen, proposes a rapid genetic detector for spaceflight water systems to enable real-time detection of E. coli with minimal consumables and crew time. The Rapid Coliform Detector (RCD) amplifies the genetic material in a liquid sample to allow near real-time identification of specific genetic sequences, in this case, that of E. coli. This easy-to-use device incorporates a patented polymerase enzyme that enables rapid RNA amplification by reagents with superior long-term shelf life and thermal stability. A color change indicator will show the presence or absence of coliform bacteria in the water within 30 minutes. The results of the Phase 1 will be test data from prototype test kits and chemical reagents for rapid coliform detection which brings the RCD to TRL 4. The anticipated results of the Phase 2 are a flight-like prototype of the complete test kit and reaction chamber, performance test results at 1g, and reduced gravity operational test results, which bring the technology to TRL 6.

## Primary U.S. Work Locations and Key Partners



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Phase I

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Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

## Primary U.S. Work Locations

California	Wisconsin
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## Project Transitions

**February 2012:** Project Start**August 2012:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/137920>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Sierra Nevada Corporation (SNC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

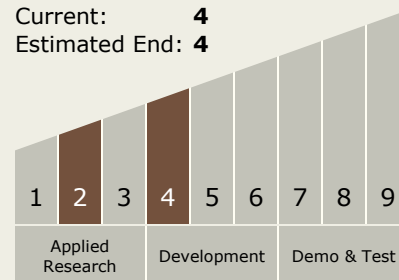
Ross Remiker

## Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4



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### Technology Areas

#### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - └ TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic

### Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System